

Applicant: Yao Wang, *et al.*  
U.S.S.N.: 10/608,742  
Filing Date: June 27, 2003  
EMC Docket No.: EMC-01-183CIP1

**In the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the Application.

**Listing of Claims:**

1. (Currently Amended) A computer architecture for managing resources for replication of data stored in a data storage environment including at least two data storage systems, and wherein said data is replicated from one of the at least two data storage systems to at least one other data storage system of the at least two data storage systems, the architecture comprising:  
a data replication management server;  
one or more data replication management software agents in communication with at least one of the two data storage systems and the data replication management server, the agents being configured for performing data replication operations in response to commands from the data replication management server; said replicated data being replicated on a volume basis; wherein server commands to each of the software agents are sent over a network in accordance with an Internet Protocol; and wherein at least one of the agents is configured to perform replication in accordance with one or more replication policies that use groups of mirrored logical volumes that store data associated with the replication, the one or more replication policies comprising a control policy, the control policy being assignable to a first grouping level and the same control policy also being assignable to a second grouping level.

Applicant: Yao Wang, et al.  
U.S.S.N.: 10/608,742  
Filing Date: June 27, 2003  
EMC Docket No.: EMC-01-183CIP1

~~providing a first data replication management (DRM) agent which is in communication with a first data storage system, and wherein the DRM agent is configured to manage replication of a database in accordance with one or more replication policies that use groups of mirrored logical volumes that store data associated with the database to be replicated, the one or more replication policies comprising a control policy, the control policy being assignable to a first grouping level and the same control policy also being assignable to a second grouping level.~~

2. (Original) The architecture of claim 1, wherein at least one of the one or more clients includes a graphical user interface.

3. (Original) The architecture of claim 1, wherein a switch is disposed in a communication path between the one or more software agents and the at least two data storage systems.

4. (Original) The architecture of claim 3, wherein the switch is used to determine the direction of data flow from one data storage system to one other data storage system of the at least two data storage systems for controlling which data storage system functions as a target for data replication and which functions as a source for data replication, wherein the replication is controlled by the server.

5. (Original) The architecture of Claim 4, wherein the server stores configuration information for replication, security and other configuration settings for the one or more software agents and the one or more clients in the data storage environment.

Applicant: Yao Wang, *et al.*  
U.S.S.N.: 10/608,742  
Filing Date: June 27, 2003  
EMC Docket No.: EMC-01-183CIP1

6. (Original) The architecture of Claim 5, wherein communication between the server and the one or more clients is encrypted for security purposes.
7. (Original) The architecture of Claim 6, wherein communication between the server and the one or more clients is encrypted with at least 128 bit keys.
8. (Original) The architecture of Claim 7, wherein communication between the server and the one or more clients is encrypted with at least 256 bit keys.
9. (Original) The architecture of Claim 6, wherein a secure socket layer (SSL) protocol is used for communication between the server and the one or more clients.
10. (Previously presented) A method for managing resources for replication of data stored in a data storage environment including at least two data storage systems, and wherein said data is replicated under control of a server from one of the at least two data storage systems to at least one other data storage system of the at least two data storage systems, the method comprising: one or more data replication management software agents in communication with at least one of the two data storage systems and the server, the agents being configured for performing data replication operations in response to commands from the server; said replicated data being replicated on a volume basis; wherein server commands to each of the software agents are sent over a network in accordance with an Internet Protocol; and wherein at least one of the agents is

Applicant: Yao Wang, *et al.*  
U.S.S.N.: 10/608,742  
Filing Date: June 27, 2003  
EMC Docket No.: EMC-01-183CIP1

configured to perform replication in accordance with one or more replication policies that use groups of mirrored logical volumes that store data associated with the replication, the one or more replication policies comprising a control policy, the control policy being assignable to a first grouping level and the same control policy also being assignable to a second grouping level.

11. (Previously presented) The method of Claim 10, wherein the environment includes one or more clients that enable communication of a user with the server through a graphical user interface, and wherein the one or more clients may include a software application that uses said data that is replicated by commands from the server to the software agent.

12. (Original) The method of claim 10, wherein a switch is disposed in a communication path between the one or more software agents and the at least two data storage systems.

13. (Original) The method of claim 12, wherein the switch is used to determine the direction of data flow from one data storage system to one other data storage system of the at least two data storage systems for controlling which data storage system functions as a target for data replication and which functions as a source for data replication, wherein the replication is controlled by the server.

14. (Original) The method of Claim 11, wherein the server stores configuration information for replication, security and other configuration settings for the one or more software agents and the one or more clients in the data storage environment.

Applicant: Yao Wang, *et al.*  
U.S.S.N.: 10/608,742  
Filing Date: June 27, 2003  
EMC Docket No.: EMC-01-183CIP1

15. (Original) The method of Claim 14, wherein communication between the server and the one or more clients is encrypted for security purposes.

16. (Original) The method of Claim 15, wherein communication between the server and the one or more clients is encrypted with at least 128 bit keys.

17. (Original) The method of Claim 16, wherein communication between the server and the one or more clients is encrypted with at least 256 bit keys.

18. (Previously presented) A system for managing resources for replication of data stored in a data storage environment including at least two data storage systems, and wherein said data is replicated from one of the at least two data storage systems to at least one other data storage system of the at least two data storage systems, the system comprising:

a data replication management server;

one or more data replication management software agents in communication with at least one of the two data storage systems and the data replication management server, the agents being configured with a computer-executable program for performing data replication operations in response to commands from the data replication management server; said replicated data being replicated on a volume basis; wherein server commands to each of the software agents are sent over a network in accordance with an Internet Protocol; and wherein at least one of the agents is configured to perform replication in accordance with one or more replication policies that use

Applicant: Yao Wang, *et al.*  
U.S.S.N.: 10/608,742  
Filing Date: June 27, 2003  
EMC Docket No.: EMC-01-183CIP1

groups of mirrored logical volumes that store data associated with the replication, the one or more replication policies comprising a control policy, the control policy being assignable to a first grouping level and the same control policy also being assignable to a second grouping level.